

Meeting on the DOMINIC Nuclear Test Series on 5 September 1962 including the Ripple and Ripple II isentropic designs of John Nuckolls

Administration: Kennedy

Place: Oval Office

Date: Wednesday, 5 September 1962

Time: 5:00 pm

Duration: 54:06

Transcript

Dean Rusk

I think you were starting to say something about this.

Unidentified

I think--

President Kennedy

The blockade thing is really [dead].

Unidentified

[Unclear.]

McGeorge Bundy

A newsman?

President Kennedy

You know what I think we ought to do, would be to get a good analysis of what the problems are of blockade--of how long it would take to have [unclear].

[Unclear exchange.] There are a few steps we can have ready [unclear]--

Robert McNamara

Well, things we can do now: We could even check the [unclear]. But I am very reticent that the blockade would be very effective on that. [Unclear interjection.] And it would certainly lead to retaliation, then, almost certainly, I would assume, by the Soviets.

Dean Rusk

It might in broad terms be very [unclear].

President Kennedy

Let's deal with that unless [unclear]. My attitude on [unclear interjection by McGeorge Bundy] off by the weather.

Bundy

[Unclear.] What we could do, what could we do . . .

Unidentified

Building up an independent--

McNamara

In addition to the deterrent we [unclear].

Unidentified

—[a] target zone. When we put it out. [Unclear discussion.]

Bundy

Third paragraph. I have all the latest substantial [unclear].

McNamara

The problem is that there is still substantial doubt whether the [unclear] Soviets retaliate with their forces in Berlin or elsewhere . . . but put that kind of a blockade in [Cuba] and it will be effective immediately with the quantities [unclear].

President Kennedy

That's obvious.

McNamara

And we didn't discuss [unclear].

Rusk

[Unclear.] [Unclear exchange.]

McNamara

He said it wouldn't take any U.S. soldiers.

Unidentified

I didn't know you said seven.

McNamara

I didn't tell him how many. [Unclear] U.S. soldiers.

Unidentified

Sorry.

McNamara

I think—

Rusk

They believe they can hold on.

McNamara

Substantial casualties [unclear] in Cuba.

Unidentified

In any event, we got a call from your office [unclear].

Unidentified

Well, this isn't going to be worse in the future. [Laughter.]

President Kennedy

All right.

McGeorge Bundy calls the nuclear test meeting to order. The chairman of the Atomic Energy Commission, Glenn Seaborg, is to lead off with a briefing on the latest Soviet test series. Announced on July 21, this test series started on August 5 with a gigantic atmospheric test estimated at 30 megatons. In the days

that followed, the Soviets tested many nuclear devices with much smaller yields.
Bundy

Mr. President, this is a preliminary meeting for a meeting of the NSC [National Security Council] tomorrow. [Tape cut off briefly.] And then look at the draft letter which essentially states the direct and appropriate amount of defense commission.

Glenn Seaborg

Well, very briefly there have been 18 airburst tests, and then there was this one underground test, where we really just got a picture of the crater of. Since the start there have . . . we only have a little bit of the radiochemistry at the moment.

Twenty-nine seconds excised as classified information.

Seaborg

The other thing I think that's interesting about the series is there's been a tremendous concentration on relatively small-yield tests; we've gotten several in the less than 5 kt [kiloton] and some that were probably less than 1 kt are the ones which we don't really have a good yield [unclear.] This is much more so than we've ever seen before when they've tested.

Jerome Wiesner

That's not surprising given the last series, which concentrated on hard wood-

Unidentified

That's right.

President Kennedy

But it indicates . . . what does that indicate?

Unidentified

Well, the thing it might indicate [is] that they're aiming at the small tactical-

President Kennedy

Tactical.

Unidentified

-type of devices; that would be my guess.

Twelve seconds excised as classified information.

Seaborg

These are still pretty tenuous but there are a number of connections between Tyuratam and the other testing areas and also with Novaya Zemlya. And there is a certain, at least, possibility that they will fire something from Novaya Zemlya, coming from Tyuratam up to Novaya Zemlya or perhaps from some other inland site. But [unclear] likely to be Tyuratam.

Eleven seconds excised as classified information.

Seaborg

Which were similar to those tests which occurred off in the Novaya Zemlya area, which gives us some thought that perhaps if they are going to do a high-altitude test, they will do it up there.

President Kennedy

This gives [unclear], all right. What problems might that present—similar to the problem of, that we—

Seaborg

We don't—I gather you'd have to ask Jerry [Wiesner] on this but my feeling is that this is less likely to cause trouble than at those higher latitudes. But as of last week those scientists—[unclear interjection]. No, you're thinking of the shot . . . no those radiation effects—but we really don't know enough about it to be sure one way or the other— it probably would depend on what the yield is.

President Kennedy

How much? By what factor would you have to increase the number of—

Unidentified

Electrons.

Unidentified

Electrons.

President Kennedy

—to make a lunar journey prohibitive?

Wiesner

It would make it difficult if you wind up with [unclear] . . .

President Kennedy

A moral [unclear].

Wiesner

More advanced . . . Would you say a factor of 50 would really push it . . . serious trouble?

Unidentified

Well, as of right now, we feel that we probably can get through; however, it is already a matter of concern and it is an additive effect. And so we would really be concerned if the electronic power increased by a factor of say ten times. I think that would almost rule out the flight.

Unidentified

There are actually two things that—there are a number of things you could do, I might point out. First of all, you could launch. You see your present difficulties occur at one hot spot in the Atlantic. If you could carry out your launchings in a way that avoided that—handicapping your launching time. You could get it back to a very substantial reduction by doing that. Secondly—

President Kennedy

I'd have to move the whole space program up to New England then. [Laughter.]

Unidentified

Yeah.

Unidentified

What did we move it for then [unclear]?

Unidentified

[Unclear] I think you could fire from any of our bases and avoid that. It just depends on the nature of your launch as a matter of fact and the nature of your mission mostly.

Secondly--whereas I think NASA is justifiably worried about the present 8R estimates of dosage, a human being could take 10 [to] 20 times that dosage of electrons, and medical people tell us, and still survive and not be sick, not be hurt. I think the [unclear]--

President Kennedy

In any case, I was thinking just because of this . . . We haven't gotten any response from the Soviets--

Unidentified

I think a factor of 50 would really get you in serious trouble. I think Bob is right that at a factor of 10 you'd begin to worry-- I think you could manage, if you found yourself in this embarrassment, but I don't--

President Kennedy

OK, right, in any case.

Unidentified

It also causes heaps of trouble, if you start--

James Webb

Well, I think we can shield, but it might cause us some trouble.

Rusk

Would any [unclear]? Has anything happened in the recent Soviet series that is any surprise at all?

Unidentified

No.

Seaborg

I think the only thing surprising is that they haven't really been--so far at this stage in the analysis--nothing surprising has showed up. But [unclear]. I think it was a little bit of a surprise that this first one was clean; I think one rather expected it not to be.

President Kennedy

What about our tests? How would you summarize our tests, as far as . . . so, how would they? If they were talking about our tests would they dismiss them quite as you dismiss theirs?

Seaborg

I think that they would not be able to understand the sophistication of some of the biggest advances we have. Well, one other point I might mention: we have electromagnetic timing measurements on the . . . pulse measurements on a number of these high-yield shots and so far all of them have been two-stage as far--

Unidentified

Well, we've missed the 25 megaton, we've--

Seaborg
No.

Unidentified
[Unclear.]

Seaborg
No, no. We got it but not with the airplane; we got it. [Unclear.]

Unidentified
That's a two-stage one, too?

Seaborg
And that's two-stage . . . Now this data—I think, at this stage one must always remember one is still relatively looking . . . taking a first look at the data.

Unidentified
I think--

Seaborg
Last year things changed several times in the process . . .

Unidentified
I think one observation that might be made here. And I don't want to put a lot of weight on it; but that is: this 25-megaton shot being clean can be inter[preted] . . . I mean, it has significance in various ways. But our most advanced ideas, namely the ripple concept, leads to an inherently clean system and maximum efficiency.

Unidentified
You don't know whether it is a clean weapon or another weapon that is--

Unidentified
Right. Or [unclear interjection] whether it's clean to be clean or whether it's clean [unclear interjection].

Seaborg
I'm sorry, I believe it has lead in it. And I think that's quite a different process. I'll check, and I don't have it here, but that's my understanding [unclear and unclear interjection] in lead so that it's not an amazing development.

Webb
Well, perhaps it isn't--

Seaborg
It wouldn't show up in lead.

Webb
With reference to your earlier question, Mr. President, I think probably the single most-advanced thing they wouldn't be able to make much sense out of, namely the ripple, which is of course a very reduced yield and a very

complicated device. So, I doubt that they could really make any sense of it.

Unidentified

So, they would have the same troubles we have with their efficient weapon last time. [Chuckles.]

Webb

Yes, I think so.

Unidentified

Not being able to decipher what it was.

Seaborg

I don't think also that they have anything like the sophisticated system that we have for [unclear].

Twenty-two seconds excised as classified information.

Kaysen

. . . I think, leads to the very low weight, high-yield weapons. Are the two most—

Unidentified

Why in other words, yes—

Unidentified

The two most important.

Kaysen

Yes. And with some real [unclear] advances in the primary, the primary—

Unidentified

Well, those came from underground.

Bundy

[Unclear] and did them underground. That's correct.

Kaysen

I was speaking of—

Twenty-four seconds excised as classified information.

President Kennedy

All right, well, let's . . . Can you?

Bundy

That's essentially all—

President Kennedy

[Unclear] now? [flipping through chart] Where do you want us to look?

Bundy

Well, at their yield. At the back of graph 3, Mr. President, that you will see the series of tests which [unclear]—

Unidentified

We brought a chart that indicates that . . .

Bundy

The next to last page, page 17, following the schedule, what it amounts to is a series of values, you get 6 of one, 5 of the other.

Unidentified

That's right. A total of 11.

Bundy

Of high-altitude tests primarily for determining these effects, which we still so imperfectly understand from 50 kilometers on up, 25 kilometers on up.

And a series of five new atmospheric tests primarily designed to explore further the problem of very high yield weapons with probably low weights. The most important being the Ripple II and Ripple III experiments, I believe.

President Kennedy

Where are those?

Bundy

On the right-hand side.

President Kennedy

OK.

Bundy

It may be worth just a moment to explain what that is. I should think Lee [Haworth] or Glenn [Seaborg] . . . Because that is probably the most important technical development in our own Dominic series.

Kaysen

That's the sort of breakthrough of the Livermore laboratory.

One minute, 29 seconds excised as classified information.

During the portion of this conversation excised for reasons of national security, the President evidently asked Glenn Seaborg a question that led to the following discussion of the role of underground testing in the U.S. program of nuclear trials.

Rusk

. . . you might Glenn Seaborg, before you get to the President's question, looking ahead at your own program underground, do you see, [unclear] strictly from your own point of view, a period of six months say in which you would not yourself expect to conduct underground tests for reasons of your own? Do you . . . Are there going to be any recesses?

Seaborg

You mean if there were . . . If the possibility existed of carrying on tests in the future on a—

Rusk

Yes.

Seaborg

Optimum time schedule?

Rusk

If there were no, if you like, interference from the outside. Are there periods of time in which you would not be doing anything anyhow—if you were just running your own . . .

Seaborg

I think our present view is that from the standpoint of the best rate of advance by testing, that the Atomic Energy Commission would prefer the—

Rusk

Steady course.

Seaborg

The steady course at an optimum rate, where the tests would be [unclear]—

President Kennedy

Let's see—how many underground tests have we carried on now, since last September?

Seaborg

About 15.

President Kennedy

We had 15 underground tests and 15 atmospheric tests.

Seaborg

No about 25 are—

President Kennedy

So, we've had 25 atmospheric.

Seaborg

About, yes.

President Kennedy

Twenty-five atmospheric tests. We've had 75 tests in the last 11, 10 months now. I can't see what there is above . . . ahead of us in the next nine months or a year that make it so necessary for us to continue to test beyond what you have talked about here. So, I mean, we are starting to talk about what, 75 times or 60, aren't we? I mean that's what we're—

Unidentified

Mr. President could I make a comment on that?

President Kennedy

Yes.

Unidentified

There is something that is in the underground program that's of great interest to us. And that's about mainly our clean weapons in the low-yield range.

Fifty-one seconds excised as classified information.

Bundy

Broadly speaking, the underground testing program can now provide for continuous and rapid weapons development and effects tests when we get calibration for everything up to 50 or even 100 kt.

And I think if we were to put it this way, Mr. President, so that you could see the choices: I don't believe that there will be any significant, really heavy pressure from the laboratories for continued atmospheric tests for a period of a year to 18 months after this series is completed in the higher yields. And I think if we were to continue without atmospheric testing in 1963, you would have high morale with a high rate of progress.

Underground testing, simply because it is the outlet, has a kind of psychological impact on the vitality and the energy of the laboratories and there is, therefore, a certain cost of cutting that off. On the other hand, the fact that we have had these 50 tests makes it perfectly plain that in the underground area we are, not only more experienced, but better informed and better prepared than any other country.

Kaysen

Of course, somebody has [unclear]—but we are also learning how to test higher and higher yields underground. This probably could now be used to test weapons up to about 100 kilotons and possibly could go up as high as a megaton. The point that Mr. Bundy makes about the general effect on the laboratories and the state of readiness that it keeps the laboratories in and the state of higher morale that it provides for the laboratories is, of course, a point [that] we have made many times.

Seaborg

I think it is just about happenstance perhaps; there has to be a time at which the things that one, the advances one would hope to make—the most significant advances that are down in the ground are ones which require a series of experiments rather than a —you build up to a point and have a sudden go/no-go test. The all-fusion weapon, is one example.

Wiesner

But the all-fusion weapon, Mr. President, shouldn't weigh very heavily in your mind, in my opinion. [Seaborg is mumbling in the background.] Because, the fact of the matter is today the all-fusion weapon, as the result of some of the tests, looks more dismal than it did a year ago. Keep in mind that people [unclear] make it. And it's got to be regarded as a long-term development program. I don't think it should be a major factor in seeing whatever your thinking is . . .

President Kennedy

Well, let's go to work on these other matters [unclear]—were you going to say something about that?

Seaborg

No, that's all right but—

Wiesner

Wouldn't you agree with the—

Seaborg

Well yeah, the high cleanliness . . . whether it's all-fusion or the other is the same general— [Unclear exchange.]

Wiesner

Which is the one that people hold out as a very cheap, and therefore very attractive weapon. It's still a gleam. And it is probably a dimmer gleam now than it was a year ago.

Unidentified

Well, this is of course part of the go/no-go [unclear].

Wiesner

Yes.

Unidentified

It doesn't make it, for us, in a year, either.

Unidentified

That's right.

Unidentified

From a military standpoint, some of these small, cleaner systems can be very useful. [Some agreement in the background.]

Unidentified

Yeah, I'm sure that's right.

President Kennedy

Let's take a look down this—how many tests are we talking about?

Unidentified

Eleven until [unclear].

President Kennedy

And they would be run from what date to what date?

Bundy

I would say from the third week in September to the first week in November. But this illustrated schedule which is on page 17 probably should be slipped and this is as good point as any to indicate the really grave complexity of this, which is the reason we've asked Mr. Webb and Dr. Seamans to be here . . . is that we have a Mercury shot scheduled now for the 25th of September. While we do not believe that test Fluvio or test Nike/Hercules currently scheduled for the 17th to the 22nd will do more than very temporary damage to this orbiting area, we don't know that. And it would certainly be necessary to measure the atmosphere before sending up Mr. [Walter] Schirra. And our preliminary thought in a staff discussion of this yesterday, was that we might do better, assuming that this in principle, in the main, were it acceptable to you, Mr. President, to slip the whole thing a couple of weeks. And to put this initial shot safely behind— the Mercury shot—rather than to have any question of this kind arise.

The way the diplomatic situation has developed there is a kind of an informal image of a January 1 point at which there may be pressure not to do atmospheric testing in light of what you and the Russians have said to each other; I don't know whether Butch would agree on this.

Adrian Fisher

Yes I would. I think January 1 is sort of a point—

President Kennedy

What? About atmospheric testing or all of them?

Fisher

Well, January 1 is the date which we said we would—

President Kennedy

Stop the testing.

Fisher

—would like to have an effective treaty. If you put it in terms of an effective treaty . . . But still if saying that, if you start up on January 1 with a series of large bangs, I think that gives you a little bit of a trumpet blowing an uncertain note.

President Kennedy

Of course, this Schirra may be a week or two weeks delayed . . . might be so?

Webb

It could be. But we are certainly making every effort to go off by the 25th.

Bundy

The alternative would be if, let's say for the moment—that we were to say that we gave NASA ten days or two weeks from the 25th to try to get him up. If that, for various technical reasons, did not happen, it might be well to put the Mercury shot over to December, where there's another one scheduled. Then get the series out of the way, and go forward.

McNamara

Could we not carry on some of the airdrop tests?

Bundy

We could do that. The airdrop tests are really not a problem. [McNamara is mumbling in the background.] But they are very easy anyway, Bob. They can be done at any point.

McNamara

I agree. I am just suggesting that instead of pushing the whole schedule forward two weeks—

Bundy

The tight part of the schedule is the high-altitude testing part. That's where there are uncertainties.

McNamara

I think there is some merit in starting the testing . . .

Bundy and McNamara speak at the same time.

Bundy

I agree, [unclear] with the current tests. I would only [unclear] started, if the Soviets stop.

McNamara

However, in that case we could start airdrops.

Wiesner

Well, there is a problem though, that the ripple weapons have to be fabricated.

Unidentified

That's right.

Wiesner

So that you can't drop them tomorrow. They are still in the laboratory, in development.

Unidentified

These were actually the earliest dates at which they could be made ready.

President Kennedy

You mean and each weapon, in other words—

Unidentified

They are being run through the laboratory right now.

President Kennedy

This is a schedule which is based on when these weapons will be ready?

Unidentified

Yes. I'd speak [unclear] now. [Unclear.]

Bundy

[Unclear] two ranges, Mr. President. In the high-altitude test cases, it is based on pad availability, essentially the BLUEGILL test, the URRACA test, and the KINGFISH test [unclear].

President Kennedy

[Unclear]?

Seaborg

Wouldn't this help you some, Jerry, with respect to this airplane question?

Wiesner

In what?

Seaborg

The BLUEGILL. . . . Isn't there a problem of outfitting an aircraft by September 17th anyway?

Unidentified

Well, there is. There is the question of whether it's a critical . . . a

critical air [unclear] or not. [Unidentified person agreeing in the background.] We could be ready to fire sometime in that period, but there might be some degradation of the experiment. Of course this is something that can happen any time in the course of an operation. But I think at this stage it would help. However, what about HAYMAKER prime risk two, you would [unclear] perhaps?

Unidentified

Well, I don't believe Ripple II, I am quite sure Ripple II cannot. I believe that the HAYMAKER can; but I have to check it--

Unidentified

That's right, HAYMAKER [unclear].

McNamara

In any case, HAYMAKER doesn't have to be postponed. That's the point I'm trying to make here.

Unidentified

Yes.

Bundy

[Unclear] That problem doesn't arise yet, so I think we can start--

Unidentified

On the 23rd--

Bundy

--the third week of September . . . [Unidentified person says, "That's right."]

Rusk

Does the BLUEGILL shot get into the space problem at all?

Kaysen

They are predicted not to.

Bundy

We think not but we would have to make a check, Mr. Secretary, before we set up an announcement--

Rusk

It would be better for the BLUEGILL shots, if the altitude permits it in honesty . . . to consider those ordinary atmospheric tests rather than high-altitude outer space tests.

Unidentified

[Snickering.]

Unidentified

If you don't, well let's try. [Unclear interjection.] There is some concern about the possibility of BLUEGILL getting something up to levels that will have some effect on the man in space . . . [unclear] far up that--

Unidentified

We don't believe this--but we believe it enough that we'd have to make

measurements after the shot to be sure.

President Kennedy

Well, I don't think we want it around that we blew off something a week before that made us postpone the thing for three months. I think we shouldn't take that chance. I would rather take it on the other end. [Unclear] telling me [unclear] had some slippage [unclear] by November 1st, well, let's say that as we . . . then let's not have it then. Let them go ahead and let's . . . then go till November 20th, [unclear] not [unclear].

Bundy

What we would actually do Mr. President, I think, is to move the BLUEGILL-URRACA-KINGFISH series back two weeks. There's a particular problem about KINGFISH which is worth attention, too. And that's the one now scheduled next to last on the 14th of October.

President Kennedy

Well, let's just set it as our policy that we will not put off any tests that raises any reasonable prospect of interfering until Schirra goes. And then let's try to decide which of these tests we can throw out. We don't want to do them all, if we can help it.

Seaborg

You mean which of these we'd terminate?

President Kennedy

Yeah.

Seaborg

Well, our candidate among the developmental tests would be the fourth, THUMBELINA.

President Kennedy

What about URRACA?

President Kennedy had been uneasy about this planned test since the British raised an objection to it in May. Kennedy created a special panel, including scientists Wolfgang Panofsky and James A. Van Allen, to study the radiation effect of URRACA on the natural radiation belt—the so-called Van Allen radiation belt—in the Earth's magnetic field. Although this distinguished panel assured the President that URRACA would not contribute significantly to the number of electrons, the President was biased against the test. For months his AEC chief Seaborg and McNamara had been fighting a rearguard action to save it. With evidence that the July STARFISH test had added so much radiation to the magnetic field that one British and two U.S. satellites had been severely damaged, the President was even more determined not to take any chances with URRACA.

Seaborg

No, that's [laughter].

Unidentified

That's our only [unclear].

Unidentified

That's our only [unclear].

President Kennedy
What?

Seaborg
That's the AEC's only high-altitude shot.

President Kennedy
I know. But we . . . I know, it's one of the saddest things I've ever . . . I mean, it needs 1,500 kilometers. [Laughter.]

Seaborg
Oh, well, no, we should have made the point that that has been reduced, Mr. President.

President Kennedy
To what?

Seaborg
From 165 kilotons to 10 kilotons to make the contribution to the artificial radiation belt negligible.

President Kennedy
All right. So, now it is down to 10 kt?

Seaborg
It is down to 10 kt.

President Kennedy
At 1,500 kilometers?

Seaborg
It is—

Bundy
Mr. President, if you wanted to look at the problem of the contribution to the electrons, the test to concentrate on is KINGFISH.

Seaborg
Yes, and we should get to that, I think, because that's—

Bundy
That's the—

Rusk
[Unclear] the URRACA. I would like to ask an irreverent question, if I can [unclear]?

Seaborg
Yes.

Rusk
I get the impression with all this material [that] this is a case of go out and see what happens. Because you know, nobody knows. Is that [unclear]—

Seaborg

Well that's [unclear].

Wiesner

If it's worse than that, you know. [Laughter.]

Seaborg

No, I don't agree with that and I wouldn't describe it that way.

Rusk

[Unclear] saying the knowledge of the existence of unpredicted phenomena could be very important.

Seaborg

Yes, and we've found unpredicted things, for example, in KINGFISH—

Unidentified

We sure did.

Wiesner

This is the place where Glenn's loyalty to his organization, I think—

President Kennedy

Now tell me why it is that this is the AEC's only test?

Seaborg

Well, because they are effects shots and the other—

President Kennedy

But, I mean, Livermore—Los Alamos. This is a Los Alamos [Scientific Laboratory] test?

Seaborg

Yes.

Unidentified

This is their only high-altitude—

Seaborg

The only high-altitude test.

Unidentified

The rest are Defense Department tests.

Seaborg

That was primarily AEC's; of course they are all at Livermore [unclear].
[Unclear] sort of joint.

President Kennedy

Yeah, but I don't know . . . And that really is. What are you going to try to find from this test?

Seaborg

How to . . . ourselves . . . test if it becomes desirable in space. And to make the diagnosis from those tests that would be necessary for weapons development and how to ascertain whether the other fellow is testing [unclear]—

President Kennedy

Well, I think what we ought to do is go around the room and everybody throw in what test they would give up, if they had to. And then we can . . . I say we're going to cut this list down. What do we want now?

Seaborg

All right. Well, I have given you the Thumbelina [device test], yes, sir.

President Kennedy

All right. Now, Jerry [Wiesner]. What one would you give?

Wiesner

Oh, dear.

President Kennedy

Let's get . . . the problem is which is the least useful scientifically?

Wiesner

I would rather go the other way and say which ones I think are most valuable.

President Kennedy

Let's do it my way. Let's just . . .

Wiesner

All right, your way, well . . . [chuckling].

President Kennedy

Which one would you throw off the list?

Wiesner

My list will be longer this way. I'd agree with THUMBELINA. I would say that HAYMAKER Prime is probably useful, but not necessary. I would—

President Kennedy

What's the least useful?

Wiesner

Least useful: probably THUMBELINA or URRACA.

President Kennedy

URRACA. We've already got THUMBELINA; so we get URRACA.

Wiesner

URRACA.

President Kennedy

All right.

Wiesner

I think Ripple III could be dispensed with, wouldn't you agree, [unclear]?

Kaysen

I'd give up Ripple III, before I'd give up URRACA, yes.

Unidentified

Yes.

Wiesner

Now, not all of the 10-kiloton tests in the high-altitude series are necessary. You'll get interesting and useful information—

President Kennedy

Yes, but, OK. Who are we going . . .

Wiesner

But, you could drop all three if you wanted to.

President Kennedy

Do you . . . one? What one do you [unclear]? [Laughter.]

Unidentified

Well, if I were . . . I think of the high-altitude things, I think that I would throw out first number 6. I'd just have 33c.

President Kennedy

That's called? [Bundy whispers.]

Unidentified

Then I would throw out, I think, next the low-yield BLUEGILL. The 25 kilometer 10 kt.

President Kennedy

Number 1?

Unidentified

Four.

Unidentified

Four. No, 4. See, 4 is a two-stage package actually—

President Kennedy

Yes.

Unidentified

It's 165 kilotons at 50 kilometers as a backup for BLUEGILL. And if BLUEGILL is successful, then it's 10 kilotons at 25 kilometers.

President Kennedy

[Unclear] questions. Do you have any, Mac?

Bundy

I am sure that I would agree on throwing out THUMBELINA and I think the test that you need to pay most attention to, Mr. President, is KINGFISH number 2, in the high-altitude series.

President Kennedy

That's right. [Four seconds excised as classified information.] What about Nike/Hercules?

Seventeen seconds excised as classified information.

Seaborg

I think that's the test you've read, Mr. President.

Wiesner

No, no. It's number 5.

Seaborg

Oh.

McNamara

The Nike/Hercules tests bear on KINGFISH—

Unidentified

That's right.

McNamara

And I think today we should simply agree that we don't know whether KINGFISH can be carried out.

Bundy

Right.

Five seconds excised as classified information.

McNamara

Information can be gained from the, particularly the first Nike/Hercules, possibly from the second Nike/Hercules also, that will bear on the potential effects of KINGFISH, and we should certainly not carry out KINGFISH or decide to carry it out until one or both of those Nike/Hercules tests have been carried out, Mr. President.

Unidentified

Mr. President—

Wiesner

Ah, excuse me . . . The trouble with that Bob is that the best estimates that we have now is you drop KINGFISH much below 40 or 50 kilotons, you won't get any of the blackout effects we are trying to study.

McNamara

I agree fully.

Wiesner

[Unclear.]

McNamara

As I say, I think that the Nike/Hercules tests will however bear on whether you should carry it out at all.

Unidentified

Uh, huh. But, Mr. President, I think—

McNamara

I don't think we can decide today, for sure—

Unidentified

No.

McNamara

—whether we should carry it out.

Carl Kaysen

I think there is a new dimension or element of the problem, which perhaps we didn't have to worry about so much before. Before, we looked at total yield and we looked at what's important and what's not. We now have a number of 10-kt shots at different altitudes, which hasn't you know—Bob McNamara has just said the purpose of finding out what we know about certain phenomena.

I think if we look at the political side of the business of putting electrons up into space, it's not only how many electrons we actually put up, but the total number of high-altitude shots that has some . . . That is a problem, that is something we ought to look at, so that—

President Kennedy

Well, now, let me ask you, point out these shots which present the electron possibility.

Forty-six seconds excised as classified information.

President Kennedy

There's not much use our going to the Russians and telling them about the problem of electrons and then going ahead and doing it ourselves and adding more electrons.

Unidentified

Well, I was thinking in estimating, however, if the Russians do put one up, in the 30- or 40-megaton amount [unclear], which is not likely . . . But if they shot a very high yield one up to the, at the most vulnerable altitude and increased by a factor of five or ten the radiation that's already up there, then we're beginning to get into the range where [unclear] it's becoming not, maybe not impossible but [unclear] which is complicated and difficult. I don't regard it as likely that the Russians [unclear] . . . additional.

President Kennedy

[Unclear] too; but we haven't heard unless I ask [unclear] that we try again with [unclear] the Russian ambassador [unclear] not much available, not much to draw on over there.

Wiesner

I think that Carl's point is very important in that the total number is [unclear].

President Kennedy

Well, let's . . . on this matter of KINGFISH, it seems to me the Defense

Department ought to come forward with additional reasons for [unclear] tests [unclear] and they can propose, so that we maybe can cut down the electrons and can give us . . . which we regard as . . . based on this information. What happened before [unclear] whether they suggest that we ought to do it or not or whether we can strip it down to . . . enough to make [unclear] useful but not hazardous. We can't very well make any less [unclear] than the Russians as far as . . . [unclear] ourselves.

Eight seconds excised as classified information.

McNamara

But we are not certain that even with that reduction by a factor of ten that we have a safe test. We don't know of any way to find out other than to carry out the Nike/Hercules tests.

Wiesner

On the other hand we [unclear] number of what will happen in [unclear].

President Kennedy

The upper limit we deem . . .

Wiesner

The worst possible thing that we think could happen is, and this we think is unlikely, it could double what's already up there.

Unidentified

If all the electrons are ours.

Unidentified

If all the electrons that their bomb would generate—

Unidentified

If they're all going in the wrong place would [unclear] increase 50 percent.

Wiesner

You see. Right now we think we've got 25 percent of the electrons.[Unclear.] If you got them all, you'd get 50 [unclear].

Unidentified

Of course that could be a different distribution.

Rusk

We know that some of these shots are creating a problem for us in space [unclear]. I would suppose that our criteria have not changed from what is necessary for national security into it would be good to do or good to know. There is a rigorous test: What is required by national security? [Unclear.]

Bundy

Mr. President, you asked the question what tests do we take now. I do not find that it's an unacceptably long list in the context of the various ideas and possibilities and knowledge probably that we have. I agree with the Secretary [of State] that that's the proper test. I think this may be our last clear chance to do this, and I think that there's a great deal to be said for getting in a posture in which we have clearly found out the things we need to find out. Because we may have a year or a year and a half when it's not easy to find out.

President Kennedy

You think—

Rusk

In fact, a major change in the weight-yield ratio, for example, is very important from a security point of view that [unclear].

Wiesner

I think you have to be careful about that because it is my understanding that this test, the Ripple II, will not put you in that position. This will put you in a position to design a weapon, which will require further testing, so that—

Unidentified

No, it will put you in pretty good position.

Wiesner

Except you'll have this one. You'll have this one, which will not be the 30 to 40 megaton.

Unidentified

No, that's right.

Unidentified

It might be 15.

Unidentified

Yeah.

Wiesner

I understand that. So that I think that should be clear.

Unidentified

But it will be a big gain.

Wiesner

On the other hand, Mr. President, you want to recall the KINGFISH-type experiment was one of the basic reasons that we felt we had to resume testing. Which was to get [these] effects [unclear]. Because of the bad luck we've had in the Pacific we've not carried out this test. Many of the others, I think, would be cut if you took seriously the criteria we started applying initially, which the Secretary has talked about.

McNamara

I would speak to that point, Jerry. I think Ripple III should not be cut.

Forty-four seconds excised as classified information.

McNamara

We may have to burst higher than we previously anticipated to avoid anti-ballistic missile systems. Therefore I think Ripple III is an important test as I think Ripple II is an important test. So, I wouldn't cut out either Ripple II or Ripple III. There are others that might be cut; but not those two.

President Kennedy

Where are we with BLUEGILL?

Well, in any case we are agreed that we will not start these tests until after this . . . Schirra has gone ahead, we'll give the order, then.

McNamara

Except, Mr. President, for some air-drop tests.

President Kennedy

Air-drop tests?

McNamara

Yes.

President Kennedy

If we can. If we can do that.

Bundy

How long would you like that, figure that period would be, Mr. President? Do you want to make it indefinite?

President Kennedy

[to the NASA representatives] Well, we ought to be able to know within two weeks if you are ever going—we hope you are going to go within two weeks of the time you've said.

Webb

I would certainly say that. Of course, worldwide weather is the problem here. [President Kennedy agrees.] [Unclear] recovered. But I think it is feasible to set the [unclear]. If we don't get off within two weeks of the time, we do have another [Mercury] flight scheduled in December. We'd simply cancel that and go on with December at which time we can have a chance to make it [unclear].

President Kennedy

It seems to me we probably won't want to do that. With all the . . . you don't want to build up the Schirra flight, then you cancel it till December. That will look like a setback. So, I would think we'd probably have to go with this flight, if you are ready to go September 25th . . . want to . . . waiting on the weather then, I think, we ought to wait until you go and just do whatever else we can do which will not affect this.

Webb

We'll do everything we can to go at the earliest possible—

President Kennedy

Then the other problem is that these tests will be taking place probably after the Soviets have announced that they have desisted their tests. We assume—

Unidentified

They have closed the area until the 15th of October—

President Kennedy

So we have to assume—

Unidentified

But that doesn't mean that they won't continue with any [unclear].

Rusk

No, they told us that they are going to be finished by November 1st.

President Kennedy

So we ought to be shooting for November 1st ourselves. We don't want to sort of string them out at the last moment if we can help it, obviously. That may mean therefore if we have to . . . if we are not able to put a couple of these airdrops into that period from September 25th that's going to put our schedule up till November 12th and 15th, won't it?

Bundy

The tightness in the schedule, Mr. President, is much more likely to come not in the airdrop tests but in the high-altitude tests. The three that are interlocked because of the launch pad problem—

Unidentified

And the airdrop won't present much of a problem.

Bundy

—are BLUEGILL, URRACA, and KINGFISH.

President Kennedy

URRACA, KINGFISH, and what?

Bundy

And BLUEGILL on 17 September, URRACA 29 September, and KINGFISH on 14 November.

President Kennedy

Well, we're all agreed that we've got to go with BLUEGILL and we have to go with KINGFISH though we're going to have another discussion on KINGFISH, aren't we? [Unclear exchange.]

Unidentified

Mr. President, I'd like to make one consideration that you should have in mind, and that'll get to the background to the test ban negotiations, background to the discussions of outer space generally. And there is under consideration before you the idea of heading off this military use of space, which is the Soviet concept to get our reconnaissance satellite, with our counter position, which is no weapons of mass destruction in outer space. Now, there's not a general resolution on that yet; but that's the way the thinking tends . . . is shaping up. Now [unclear] is [unclear] to many ones in outer space, at the same time you make your proposal. And that's [unclear] URRACA, and . . . [unclear interjection] which you hold your position on KINGFISH is—

President Kennedy

Well, URRACA is in trouble . . . anyway. But the other . . . KINGFISH is the—

Unidentified

It's our most important test.

President Kennedy

. . . most important test. Unless we have a great October, I [unclear].

Bundy

[Unclear] is the most important test.

President Kennedy

What?

Bundy

[Unclear] ranks after BLUEGILL, STARFISH, and URRACA, in the earlier recommendations, I think

Unidentified

That is right.

Unidentified

One part of the reason for that I believe was DOD wasn't ready to go ahead with it. I think they always felt it was an important test.

Seaborg

KINGFISH was always in the forefront of these. We didn't think we could do it this year.

Wiesner

Mr. President, one other thing is that [unclear] responsibility for the fallout [unclear] getting rid of Thumbelina [unclear]—

President Kennedy

Yeah.

Wiesner

Because that'll [unclear].

President Kennedy

I see.

Bundy

I might mention, Mr. President, although it is not a part of this specific presentation that there is also a possibility, that there is a recommendation on it, there is a request for authority to make a fourth lattice shot. And this would also create fall-out and those problems and the Defense Department yesterday was apparently pulling very hard [unclear] all this attention [unclear] the [boron?].

Seaborg

[Unclear] to trigger a shot to see about X rays up and down. And you [unclear] experiment. You look like you get the data, but we certainly are not interested in pushing that problem.

Wiesner

It's a test that's not unlike, it's a test not unlike the one we had [unclear] trouble [unclear] accidentally.

Seaborg

It's about the same magnitude. There are in effect two shots: There's one at one-and-a-half or 1.7 megaton, kilotons each but right on the surface.

McNamara

Mr. President, in view of the problem of the Russians completing their tests on November 1st and ours which slipped, as we discussed it, and extending substantially beyond that point, I'd like to suggest we take this schedule, and at least as far as the Nike/Hercules and the KINGFISH shots are concerned, reschedule this to be completed by the 1st of November. I don't know exactly how we'll do that; but if you could give us that objective, I think we can work it out. But I don't think we ought to have a schedule extending beyond November 1st.

Unidentified

This poses a problem with regard to Mercury.

McNamara

It does, well, but I am going to assume for the minute that we will accept a delay in Mercury and reschedule in such a way as to complete it by the 1st of November.

President Kennedy

How long do you think you'll need? It's possible to give you five weeks; but it might only give you three.

McNamara

It might only give us three weeks; but we have constructed another pad, fortunately.

Unidentified

It doesn't come in till the 15th—

McNamara

I know it doesn't come in until the 15th of October; but it is available for two weeks. And for two weeks, we will have two pads. For the period before that, we will only have one pad.

I think we ought to simply take it as our objective to finish this off by the 1st of November, at least on schedule.

Bundy

Mr. Secretary, I think we ought to be awfully careful about this high-altitude test, just out of the experience we have had in trying to cram it into a tight schedule. I would hate to see us come down to a period in which we were missing certain things in October [unclear] for the one that I would myself think in the light of the whole pattern of our relations with the Soviet Union, it is essential for us to [unclear] [McNamara begins to interject]. Pressure for [unclear].

McNamara

I don't think it's essential, Mac. But I think we can gain a lot by preparing to complete it by the 1st of November. As a matter of fact, we will begin to anticipate problems and find solutions to them. Mac, my concern about what may happen, if we have to defer our tests until after Mercury starts [is] Mercury

may not take off until the end of November, or the end of October. We've got to have some action here to try to compress our schedule. The best way to get it is simply say, assume you don't start until the third . . . or three weeks after the 15th of September and finish the 1st of November.

Rusk

But on the political side, if we were quite clear that we had given them [unclear] their two shots go off after they had stopped, we didn't say that.

President Kennedy

[Unclear] finish.

Rusk

[Unclear.] Well, we wouldn't want to do that, then the [unclear] got to be larger [unclear].

President Kennedy

What about BLUEGILL? Now, what is BLUEGILL doing in the way of electrons?

Wiesner

Very little. [Unclear exchange.]

President Kennedy

Can you get it at 95 [unclear]? Is that the difference?

Unidentified

Yes, the pressure goes up very greatly.

President Kennedy

You can't [unclear] . . . dropping KINGFISH?

Unidentified

Well, the trouble is dropping KINGFISH—

President Kennedy

Now what is KINGFISH going to tell us that BLUEGILL doesn't?

Fifty-one seconds excised as classified information.

President Kennedy

. . . Let's do this.

Wiesner

[Unclear] you call URRACA because we don't know about that very high altitude—

President Kennedy

Let's take to . . . we're going to be back here tomorrow. I think overnight let's be thinking—I think we ought to . . . I think 11 [tests] is too many given our time problem. So we've got to try to drop—take it down to 8. And we just have to see where we, and then let's see what our—given the problem of—let's do two schedules: One in which they go off on time—give them two days; and the other is two weeks. When . . .

And how would we organize it in order to get it done as close to the November 1st date as Bob McNamara has suggested in recognition that that's not a final

decision right now?

Then let's . . . What other matter do we have to consider in regard [to this]? There's nothing more we can do about KINGFISH. You got that down about as fine as you can.

Unidentified

Have to learn more, sir. It is conceivable that we will have to wait for the yields [unclear] times and the exact height of the [unclear]?

Unidentified

Learn as much as we can up until . . . for the time that you need, the advance time that you need, learn as much as you can from it [unclear].

President Kennedy

Now is there anything . . . you got three, as I understand it, there are three Nike/Hercules?

Seaborg

Three, yes. Well, one is a scout.

Unidentified

Two are Nike/Hercules and one is a scout, XM 33c.

President Kennedy

They're all . . .

Unidentified

The BLUEGILL one.

President Kennedy

XM 33c was put in somebody's list. Which one is that? What do you call it?

Unidentified

That's six, seven, and eight [unclear].

Twenty-four seconds excised as classified information.

President Kennedy

The fact of the matter is, if the Soviet Union ever really gets this space ship which presented us with a real military matter, couldn't you stop it?

Unidentified

If there are people . . . Yes, if they—

President Kennedy

Have people on it.

Wiesner

Well, if it were up above 500 kilometers or so.

Unidentified

[two people talking at the same time] Even at a low altitude, you could do it for quite a while because quite high levels for a day—

Wiesner

For a few days this stuff could be made very intense.

Unidentified

Oh, yes we could stop it, yes.

President Kennedy

If it were manned?

Unidentified

If it were manned and we wanted to.

Wiesner

You could probably even stop electronic equipment, if you wanted to—

President Kennedy

Yeah.

Wiesner

But it would take the [unclear].

McNamara

Well, the probability is we could shoot it down with Nike/Zeus from Kwajalein.

Wiesner

You could probably even stop solar cells from there.

McNamara

We will have by next May, Mr. President, [unidentified interjection] the capacity at Kwajalein to shoot down satellites in the order of 150- to 200-mile altitude and we can probably increase that to 800 miles of altitude, say 1,300 kilometers, within a year or two.

President Kennedy

We assume they will have the ABM?

McNamara

And we assume they will have the same, yes.

Wiesner

You see we're doing it with the Nike/Zeus.

McNamara

Yes.

Wiesner

And they have a comparable system.

McNamara

Yes.

Wiesner

In fact, we could do it with our regular missiles, if we wanted to.

McNamara

There is a great probability that Leningrad system will have some capability of this kind.

Wiesner

See, if we really wanted to attack a satellite now, we think we can do it relatively quickly with a Minuteman, or even with a smaller missile.

President Kennedy

Well, in any case, we are going to be back again tomorrow morning and we are going to see if we can get this thing down to eight and then what the schedule ought to be in view of priorities [unclear].

Unidentified

Right.

Seaborg

Mr. President, there is one thing: Cutting the weapons development tests won't help much on the schedule.

Unidentified

No.

Seaborg

We have to do it on the left-hand column.

President Kennedy

Now, we are also concerned, which we haven't talked about much, about radiation.

Wiesner

Well, this is why I feel strongly about THUMBELINA.

Unidentified

That's where THUMBELINA helps.

Wiesner

THUMBELINA helps a great deal; but the Ripple II and III [tests of ripple nuclear devices] will also make a substantial difference. I understand the Secretary's—